What is claimed is:

1. A mask pattern for sequential lateral solidification (SLS) comprising:

a) a first set of slits for achieving a first two-shot SLS process; and

b) a second set of slits at a desired angle relative to the first set of slits for achieving a second two-shot SLS process.

2. The mask pattern of claim 1, wherein the desired angle is 90 degrees.

3. The mask pattern of claim 1, wherein the first set of slits further comprises:

a) a first array of beamlets for projecting a first pattern; and

b) a second array of beamlets adjacent to the first array of beamlets and offset such that the second array of beamlets are aligned with the gaps between the first array of beamlets, whereby the first array of beamlets and the second array of beamlets can be used in combination in a two shot SLS process.

4. The mask pattern of claim 3, wherein the second set of slits further comprises:

a) a third array of beamlets aligned at a 90 degree angle relative to the first array of beamlets and the second array of beamlets; and

b) a forth array of beamlets parallel and adjacent to the third array of beamlets adjacent and separated by a gap that is wider than a space between adjacent individual beamlets, whereby the third array of beamlets and the forth array of beamlets can be used in combination in a two shot SLS process.

5. A method of crystallizing a thin film of material comprising the steps of:

a) depositing a thin film of material over a substrate;

b) irradiating regions of the material with a first array of beamlets by positioning a mask comprising the pattern of the first array of beamlets over the regions;

c) stepping the mask until a second array of beamlets is positioned at least partially overlapping the regions irradiate by the first array of beamlets;

d) irradiating regions adjacent to the regions irradiated by the first array of beamlets;

e) stepping the mask until a third array of beamlets is positioned at least partially overlapping the regions irradiated by the first array of beamlets and the second array of beamlets;

f) irradiating regions of the material with the third array of beamlets;

g) stepping the mask until a forth array of beamlets is positioned at least partially overlap regions of the material irradiated by the third array of beamlets; and

h) irradiating regions adjacent to the regions irradiated by the third array of beamlets.

6. The method of claim 5, wherein the mask is not rotated relative to the material during processing.

7. A method of performing a 2 + 2 process on a material layer deposited over a substrate comprising the steps of:

a) providing a mask comprising a first set of substantially parallel slits and a second set of substantially parallel slits at an angle relative to the first set of slits;

b) performing a first 2-shot process using the first set of slits;

c) translating the mask laterally; and

d) performing a second 2-shot process using the second set of slits.

8. The method of claim 7, wherein the mask is translated laterally without rotating the substrate relative to the mask.

9. The method of claim 7, wherein the second set of substantially parallel slits is at an approximately 90 degree angle relative to the first set of slits.

10. The method of claim 7, wherein the first set of slits comprises a first array of beamlets and a second array of beamlets, and the step of performing the first 2-shot process further comprises the steps of:

a) irradiating the material layer through the first array of beamlets to crystallize a first set of material regions;

b) translating the mask laterally; and

c) irradiating the material layer through the second array of beamlets to crystallize regions of the material layer adjacent to the first set of material regions.

11. The method of claim 10, wherein the second set of slits comprises comprises a third array of beamlets and a forth array of beamlets, and the step of performing the second 2-shot process further comprises the steps of:

a) irradiating the material layer through the third array of beamlets to recrystallize regions of material;

b) translating the mask laterally; and

c) irradiating the material layer through the forth array of beamlets to crystallize regions of the material layer adjacent to the material crystallize by the third set of beamlets.